
A SYSTEMATIC REVIEW OF THE RESEARCH LITERATURE ON THE USE OF PHONICS IN THE TEACHING OF READING AND SPELLING

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Introduction

The Department for Education and Skills (DfES) commissioned the Universities of York and Sheffield to conduct a systematic review of experimental research on the use of phonics instruction in the teaching of reading and spelling. This review is based on evidence from randomized controlled trials (RCTs).

Key Findings

The effect of phonics on reading:

- Systematic phonics instruction within a broad literacy curriculum was found to have a statistically significant positive effect on reading *accuracy*.
- There was no statistically significant difference between the effectiveness of systematic phonics instruction for reading *accuracy* for normally-developing children and for children at risk of reading failure.
- The weight of evidence for both these findings was moderate (there were 12 randomized controlled trials included in the analysis).
- Both of these findings provided some support for those of a systematic review published in the United States in 2001 (Ehri *et al.*, 2001).
- An analysis of the effect of systematic phonics instruction on reading *comprehension* was based on weak weight of evidence (only four randomized controlled trials were found) and failed to find the statistically significant positive difference which was found in the previous review.

The effect of synthetic and analytic phonics (see definitions below):

- The weight of evidence on this question was weak (only three randomized controlled trials were found). No statistically significant difference in effectiveness was found between synthetic phonics instruction and analytic phonics instruction.

The effect of phonics on spelling:

- The weight of evidence on this question was weak (only three randomized controlled trials were found). No effect of systematic phonics instruction on spelling was found.

Definitions

Phonics instruction: Literacy teaching approaches which focus on the relationships between letters and sounds.

Synthetic phonics: The defining characteristics of synthetic phonics for reading are sounding-out and blending.

Analytic phonics: The defining characteristics of analytic phonics are avoiding sounding-out, and inferring sound-symbol relationships from sets of words which share a letter and sound, e.g. *pet, park, push, pen*.

Systematic phonics: Teaching of letter-sound relationships in an explicit, organised and sequenced fashion, as opposed to incidentally or on a 'when-needed' basis. May refer to systematic synthetic or systematic analytic phonics.

Aims of the review

The systematic review investigated how effective different approaches to the initial teaching of reading and spelling are in comparison to each other. The review questions were:

How effective are different approaches to phonics teaching in comparison to each other (including the specific area of analytic versus synthetic phonics)?

How do different approaches impact on the application of phonics in reading and writing, including beyond the early years?

Is there a need to differentiate by phonics for reading and phonics for spelling?

What proportion of literacy teaching should be based on the use of phonics?

Background

Phonics teaching is a much debated area of literacy teaching. The National Literacy Strategy (NLS) (DfEE, 1998) recommended a mixed approach that included an element of phonics instruction, but it has been argued that such an approach might lead to confusion among young children, and that phonics should be the predominant method of word identification they are taught. However, there is disagreement as to which method of phonics teaching is most effective.

A method of resolving uncertainty between different approaches to teaching is to conduct a randomized controlled trial (RCT). An RCT is where two or more groups of children are formed randomly and each group receives a different form of instruction. If one group makes significantly better progress it can be inferred that the form of teaching they received was more effective, because all other factors which might influence the outcome are controlled for (with the exception of chance).

Methods

Systematic review methods were used throughout this review. That is, as far as possible all relevant RCTs were identified and included. Non-systematic reviews may give misleading results if it is not clear why some studies were included and others were not, and may be subject to reviewer bias. The only two previous systematic reviews in this field were

published in the United States (Ehri *et al.*, 2001; Camilli *et al.*, 2003). The present review updated the previous reviews, broadened the sources of information which were searched, and adopted more rigorous criteria for identifying relevant studies.

The studies included were RCTs which focused on the use of phonics instruction in English, in order to ensure a fair comparison between the effectiveness of systematic phonics and of alternative approaches to reading instruction. Data were extracted from each included RCT and put into a meta-analysis¹.

Findings

The review identified a total of 20 RCTs, of which only one was UK-based (Johnston and Watson, 2004, experiment 2). All were concerned with the initial teaching of reading (and, in a few cases, spelling); the children studied were mostly between five and seven years of age, but four of the trials included children up to age 11.

The current review found that systematic phonics teaching was associated with better progress in reading *accuracy*. This effect was seen across all ability levels. However, the weight of evidence (from RCTs) on reading *comprehension* was weak, and no significant effect was found for reading comprehension.

The review found no evidence for the superiority of either synthetic or analytic phonics instruction over the other - but there were only three small RCTs on which to base this comparison. Similarly, phonics instruction did not appear to affect progress in spelling, but again there were only three relevant RCTs. Therefore, this does not provide strong evidence for or against the use of phonics in the teaching of spelling.

It was not possible to analyse how different approaches impacted on the application of phonics in reading and writing beyond the early years because only three RCTs used follow-up measures.

¹ A meta-analysis is a method of combining the results of two or more RCTs statistically. In educational research the method is particularly helpful as many educational RCTs are too small to identify possibly significant differences between groups. By combining several small studies it is possible to identify moderate but important effects.

Conclusions

Systematic phonics instruction within a broad literacy curriculum appears to have a greater effect on children's progress in reading than whole language or whole word approaches. The effect size is moderate but still important. However, there is still uncertainty in the RCT evidence as to which phonics approach (synthetic or analytic) is most effective.

Recommendations

For teaching

- Systematic phonics instruction should be part of every literacy teacher's repertoire and a routine part of literacy teaching.
- Teachers who already use systematic phonics in their teaching should continue to do so.
- Teachers who do not use systematic phonics in their teaching should add it to their routine practices.
- Systematic phonics should be used with both normally developing children and those at risk of failure.

However,

- There is currently no strong RCT evidence that any one form of systematic phonics is more effective than any other.
- There is also currently no strong RCT evidence on how much systematic phonics is needed.
- Two other areas on which the existing research base is insufficient are whether or not phonics teaching boosts comprehension, and whether phonics should be used to teach spelling as well as reading.

For teacher training

- The evidence that systematic phonics teaching benefits children's reading accuracy further implies that learning to use systematic phonics in a judicious balance with other elements should form part of every literacy teacher's training.

For research

- A large UK-based cluster-randomized controlled trial would enable further investigation of the relative effectiveness of systematic synthetic versus systematic analytic phonics instruction with children with different learning characteristics.

Additional Information

Copies of the full report (RR711) - priced £4.95 - are available by writing to DfES Publications, PO Box 5050, Sherwood Park, Annesley, Nottingham NG15 0DJ.

Cheques should be made payable to "DfES Priced Publications".

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